FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Remedial Design Fact Sheet for Operable Unit 5 Aquifer Restoration - Groundwater FRLs for Fluoride and Lead

May 1997

OVERVIEW

This Remedial Design Fact Sheet documents a change to the Operable Unit 5 Record of Decision (ROD) established groundwater Final Remediation Levels (FRLs) for fluoride and lead.

- The groundwater FRL for fluoride will change from 0.89 mg/L (background concentration) to the Safe Drinking Water Act (SDWA) established Maximum Contaminant Level (MCL) of 4 mg/L.
- The groundwater FRL for lead will change from 0.002 mg/L (background concentration) to the SDWA established Action Level of 0.015 mg/L .

Note that these FRL changes pertain only to the groundwater FRLs, soil and surface water FRLs for fluoride and lead will remain consistent with those established in the Operable Unit 5 ROD (DOE 1996).

Both changes are consistent with the FRL selection process outlined in the Operable Unit 5 Feasibility Study. The need for these changes was discovered during the design process for preparing the detailed design for the Operable Unit 5 Great Miami Aquifer Remedy. These particular FRL changes have been identified as "non-significant post-ROD changes," as they do not significantly alter the scope, performance or cost of the remedy. This optional Fact Sheet was prepared in accordance with US EPA's Guide to Addressing Pre-ROD and Post-ROD Changes (OSWER Publication 9355.3-02FS-4, April 1991), which accommodates refinements to the remedy discovered to be necessary after ROD signature.

BASIS FOR THE FRL CHANGES As identified in the Operable Unit 5 Feasibility Study, the intent of the groundwater FRL selection process was to utilize the regulatory standards of MCLs, proposed MCLs, or nonzero MCL Goals (MCLGs) as target cleanup values. For those Constituents of Concern with no MCLs, proposed MCLs, or nonzero MCLGs, a Target Risk Level of 10^{-5} and a Hazard Index of 0.2 to a resident farmer was considered. If the background concentration or analytical detection limit for a particular constituent was higher than the established regulatory standard or risk based concentration then the background or analytical detection limit was selected.

Fluoride: In the development of the groundwater FRL for fluoride, the MCL for fluoride (4 mg/L) was inadvertently overlooked. According to the FRL selection process, the fluoride MCL is the appropriate value for the FRL. Because the MCL was overlooked, the groundwater FRL for fluoride, presented in the Operable Unit 5 ROD, was inadvertently established based on the background concentration of fluoride, which is 0.89 mg/L.

Lead: In the development of the groundwater FRL for lead, the Safe Drinking Water Act Action Level for lead (0.015 mg/L) was inadvertently overlooked. According to the FRL selection process, the action level should have been considered for the groundwater FRL. However, because the action level is not a promulgated MCL, the EPA and OEPA requested that DOE support the selection of this value for the groundwater FRL by deriving a risk-based remedial level utilizing existing data and established models for evaluating lead exposure. DOE utilized the EPA's Integrated Exposure Uptake Biokinetic Model (IEUBK) for Lead in Children, Publication 9285.7-15-1, U.S. EPA, February, 1994. The IEUBK model results confirmed that the SDWA Action Level of 15 μg/L is an appropriately conservative value for the groundwater FRL for lead at the FEMP.

With these refinements, the Operable Unit 5 groundwater remedy continues to provide remediation levels for the Great Miami Aquifer that are health protective. The changes enhance the Operable Unit 5 groundwater remedy in that they correct inconsistencies in the application of the FRL selection process and provide more realistically achievable groundwater FRLs for fluoride and lead.

For additional information concerning these changes please contact Mr. Gary Stegner, DOE FEMP Public Affairs at (513) 648-3153 or refer to the Restoration Area Verification Sampling Program Project Specific Plan, Appendices A and B. This Plan is located at the FEMP Public Environmental Information Center, JAMTEK Building, 10845 Hamilton-Cleves Highway, Harrison, Ohio 45030, Telephone: 513-738-0164 or 0165.